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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/765,218	01/28/2004	Jozef Maria Finders	081468-0304531	7651

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PILLSBURY WINTHROP SHAW PITTMAN, LLP
P.O. BOX 10500
MCLEAN, VA 22102

EXAMINER

GUTIERREZ, KEVIN C

ART UNIT	PAPER NUMBER
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2851

DATE MAILED: 11/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/765,218	Applicant(s) FINDERS ET AL.	
	Examiner Kevin Gutierrez	Art Unit 2851	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 March 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) 1-22,33 and 34 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 23-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>3-20-06</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after allowance or after an Office action under *Ex Parte Quayle*, 25 USPQ 74, 453 O.G. 213 (Comm'r Pat. 1935). Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on 12-21-2005 has been entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Adachi et al. (US 2002/0106818) in view of Almogy (US 2003/0123040).

Regarding claim 23, Adachi et al. disclose "providing a beam radiation ([0048], lines 4-5);

employing a patterning device (figure 5, 112; reticle) to impart said beam of radiation with a pattern in its cross-section in which said pattern ([0048], lines 2-4) is

decomposed into at least two constituent sub-patterns (12, 22; first and second pattern);

exposing a first (12; first pattern) of said at least two constituent sub-patterns by directing said beam of radiation beam through said first sub-pattern such that said lithographic system produces a first sub-pattern image (fig. 1, S1) onto said pre-specified photoresist layer of said substrate (115; wafer);

processing said exposed substrate (fig. 1, S12, ([0047], lines 11-12);

exposing a second (22; second pattern) of said at least two constituent sub-patterns by directing said beam of radiation through said second sub-pattern such that said lithographic system produces a second sub-pattern image onto a target area of said pre-specified photoresist layer of said substrate (fig. 1, S2; [0045], lines 4-6),

wherein said exposing combines said first and second sub-pattern images to produce a desired pattern on said target area of said substrate ([0045], lines 9-11).”

Adachi et al. does not disclose “providing a substrate coated with a photoresist layer having reduced memory reaction characteristics.”

However, having a substrate coated with a photoresist layer having reduced memory reaction characteristics” is known to the art as it is evident by the teaching of Almogy ([0013], line 2). Thus, it would have been obvious to one ordinary skilled in the art at the time the invention was made to modify the photoresist layer of Hsu et al by including a memoryless photoresist for at least the purpose to avoid integrating the energies of consecutive exposures.

Regarding claim 24, Adachi et al. further disclose “wherein said desired pattern is exposed with features that correspond to a half-pitch lower limit $k_{sub.1}$ less than or equal to 0.25 ([0055], lines 7-9).”

Regarding claims 25, Adachi et al. further disclose “wherein said processing includes, baking said substrate having said first sub-pattern image on said photoresist layer ([0036], lines 7-11).”

4. Claims 26 and 29-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Adachi et al. in view of Almogy, as applied to claim 25 above, and in further view of Boettiger et al (5,111,240).

Regarding claim 26, Adachi et al. disclose where a substrate is developed ([0036, lines 7-8), but does not disclose “further including a developer solution to said substrate”

However, having “further including a developer solution to said substrate” is well known to the art as it is evident by the teaching of Boettiger et al (col. 1, lines 23-24). Thus, it would have been obvious to one ordinary skilled in the art at the time the invention was made to further modify Hsu et al. as modified by applying a developer solution to the substrate for least the purpose to reduce cost production.

Regarding claim 29, Adachi et al. disclose the limitations set forth in claim 26 and further disclose “shifting said substrate by a predetermined distance, in order to combine said second sub-pattern image with said first sub-pattern image ([0040], lines 9-15).”

Regarding claim 30, Adachi further disclose “further including baking said substrate having said second sub-pattern image and a developed first sub-pattern image on said photoresist layer ([0036], lines 7-9).”

5. Claims 27 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Adachi et al and Almogy in view of Boettiger et al, as applied to claim 26 and 29-30 above, and further in view of Hsu et al. (US 2003/0044722).

Adachi et al. further disclose “said desired pattern includes features that correspond to a half-pitch lower limit k_1 less than or equal to 0.25 ([0055], lines 7-9), but does not disclose “wherein said processing is optimized by employing specific bake times and temperatures.”

However, having “wherein said processing is optimized by employing specific bake times and temperatures” is known to the art as it is evident by the teaching of Hsu et al. ([0004], lines 4-7). Thus, it would have been obvious to one ordinary skilled in the art at the time the invention was made to further modify the processing step of Adachi et al. as modified to including specific bake times and temperatures for at least the purpose of reduce cost for production.

6. Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Adachi et al. in view of Almogy, as applied to claim 23 above, and in further view of Nakamura et al. (US 2003/0064307).

Regarding claim 28, Adachi et al. as modified further discloses a photoresist layer, but does not disclose the layer further comprising of a polymer resin compound, a photo-acid generator component, and a base component.

However, Nakamura et al. teaches a photoresist layer that comprises:

- a polymer resin compound ([0066], line 1);
- a photo-acid generator component ([0066], lines 5-6);
- a base component ([0119], line 2);

Thus, it would have been obvious to one ordinary skilled in the art at the time the invention was made to further modify the photoresist layer of Hsu et al by including a polymer resin compound, photo-acid generator component, and a base component for at least the purpose of form an image on a thin film.

7. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Adachi et al., Almogy, Boettiger et al and in view of Nakamura et al., and as applied to claim 31 above, and in further view of Nakamura et al.

Adachi et al. as modified further discloses a photoresist layer, but does not disclose the layer further comprising of a polymer resin compound, a photo-acid generator component, and a base component.

However, Nakamura et al. teaches a photoresist layer that comprises:

- a polymer resin compound ([0066], line 1);
- a photo-acid generator component ([0066], lines 5-6);
- a base component ([0119], line 2);

Thus, it would have been obvious to one ordinary skilled in the art at the time the invention was made to further modify the photoresist layer of Hsu et al by including a polymer resin compound, photo-acid generator component, and a base component for at least the purpose of form an image on a thin film.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Gutierrez whose telephone number is (571)-272-5922. The examiner can normally be reached on Monday-Friday: 8:00 a.m. - 5:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diane Lee can be reached on (571)-272-2399. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Kevin Gutierrez
Examiner
Art Unit 2851

November 7, 2006

Rodney Fuller
Primary Examiner

